AMENDMENTS

1.   (Previously Presented)   A method of reading an addressable array of biopolymers on a substrate which array has been exposed to a sample, comprising:

(a)   detecting signals from the exposed array to obtain a signal image of the array;

(b)   establishing, based on the detected signals, a shape of each region in one or more sets of multiple regions on the array signal image, and displaying the established shapes, wherein the shape of regions of a set include an identified shape of any of an array feature, a background region, and an identified inlier or outlier region within an array feature or background region;

(c)   processing each region of each set according to a region processing routine; and

(d)   saving the displayed shapes in a first file and the processed results in a second file.

2.   (Previously Presented)   The method according to claim 1 wherein the biopolymers are polynucleotides.

3.   (Previously Presented)   The method according to claim 2 wherein the biopolymers are DNA.

4.   (Previously Presented)   The method according to claim 1 wherein the first file is smaller than the second file.

5.   (Previously Presented)   The method according to claim 1 additionally comprising, subsequent to processing of each region, retrieving the saved shapes of the established regions and displaying images of them.

6.   (Previously Presented)   The method according to claim 1 additionally comprising, saving the array signal image, and subsequent to processing each region, retrieving the array signal image and saved shapes of the established regions and displaying overlaid images of them.

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7.   (Previously Presented)   The method according to claim 6 wherein each displayed region is linked to processed results for that region.

8.   (Previously Presented)   The method according to claim 7 additionally comprising evaluating the results from the processing based on the displayed retrieved shapes.

9.   (Previously Presented)   The method according to claim 7 additionally comprising, based on the displayed retrieved shapes, altering a parameter used in the processing and re-processing a region using the altered parameter.

10.   (Previously Presented)   The method according to claim 6 additionally comprising re-processing a region in response to an alteration of one of the shapes of a set using the altered shape.

11.   (Previously Presented)   The method according to claim 5 wherein the shape of regions of a first set are established which comprise regions of signal strength higher than a predetermined value representing detected array features, surrounded by regions of lower signal strength representing detected background.

12.   (Previously Presented)   The method according to claim 11 wherein the regions of the first set are processed by a first routine comprising a summation of signal strength within sub-regions of each first set region to provide a total signal strength for each first set region.

13.   (Previously Presented)   The method according to claim 4 wherein the shape of regions of a second set are established each of which comprises a local background region of lower signal strength than a corresponding detected feature about which the background region is positioned.

14.   (Previously Presented)   The method according to claim 13 wherein the first routine comprises subtracting local background region signal strength from the corresponding detected feature signal strength.

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15.   (Cancelled)

16.   (Previously Presented)   The method according to claim 12 wherein the array signal image is a digital signal image and the sub-regions are pixels or pixel blocks.

Claims 17 to 24 (Canceled).

25.   (Previously Presented)   An apparatus for reading an addressable array of biopolymers on a substrate which array has been exposed to a sample, comprising:
(a)   a detector to detect signals from the exposed array to obtain a signal image of the array;
(b)   a memory; and
(c)   a processor which:
establishes, based on the detected signals, a shape of each region in one or more sets of multiple regions on the array signal image, wherein the shape of regions of a set include an identified shape of any of an array feature, a background region, and an identified inlier or outlier region within an array feature or background region;
saves a definition of the shapes of the established regions of each set in a memory;
processes each region of each set according to a region processing routine; and
saves the displayed shapes in a first file and the processed results in a second file.

26.   (Previously Presented)   The apparatus according to claim 25 wherein the biopolymers are polynucleotides.

27.   (Previously Presented)   The apparatus according to claim 25 wherein the processor, subsequent to processing of each region, retrieves the saved shapes of the established regions and displays images of them.

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28.   (Previously Presented)   The apparatus according to claim 25 wherein the processor saves the array signal image in memory and, subsequent to processing each region, retrieves the array signal image and saved shapes of the established regions, and displays overlaid images of them.

29.   (Previously Presented)   The apparatus according to claim 28 wherein each displayed region is linked to processed results for that region.

30.   (Previously Presented)   The apparatus according to claim 28 wherein the processor, in response to a user input alteration of one of the shapes of a set, re-processes that region with the altered shape according to the corresponding routine for that set.

31.   (Previously Presented)   The apparatus according to claim 25 wherein the shape of regions of a first set are established which comprise regions of signal strength higher than a predetermined value representing detected array features, surrounded by regions of lower signal strength representing detected background.

32.   (Previously Presented)   The apparatus according to claim 26 wherein the regions of the first set are processed by a first routine comprising a summation of signal strength within sub-regions of each first set region to provide a total signal strength for each first set region.

33.   (Previously Presented)   The apparatus according to claim 31 wherein the processor establishes a shape of regions of a second set each of which comprises a local background region of lower signal strength than a corresponding detected feature about which the background region is positioned.

34.   (Previously Presented)   The apparatus method according to claim 33 wherein the first routine comprises subtracting local background region signal strength from the corresponding detected feature signal strength.

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Claims 35 to 36 (Cancelled).

37.   (Previously Presented)   A computer program product, comprising: a computer readable storage medium having a computer program stored thereon for performing, when loaded into a computer, the steps of:

(a)   receiving signals from a biopolymer array which has been exposed to a sample, as a signal image of the array;

(b)   saving the array signal image in a memory;

(c)   establishing, based on the detected signals, a shape of each region in one or more sets of multiple regions on the array signal image, wherein the shape of regions of a set include an identified shape of any of an array feature, a background region, and an identified inlier or outlier region within an array feature or background region;

(d)   saving a definition of the shapes of the established regions of each set in a memory; and

(e)   processing each region of each set according to a region processing routine.

Claims 38-40 (Cancelled)

41.   (Withdrawn) A computer program product, comprising: a computer readable storage medium having a computer program stored thereon for performing, when loaded into a computer, the steps of:

retrieving from a non-volatile memory a saved shape of each region in one or more sets of multiple regions on a signal image from an addressable array of biopolymers which was exposed to a sample, which regions were based on the array signal image; and

following retrieval of the saved shapes, retrieving from the non-volatile memory the majority of other processed data for each region of each set which data was processed according to a corresponding routine for that set.

42.   (Withdrawn) A method according to claim 41 wherein the processor additionally retrieves the array signal image from the non-volatile memory.

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Please enter the following New Claims:

43.   (New) A method of reading an addressable array of biopolymers on a
substrate which array has been exposed to a sample, comprising:
(a)   detecting signals from the exposed array to obtain a signal image of the array;
(b)   establishing, based on the detected signals, a shape of each region in one or
more sets of multiple regions on the array signal image, and displaying the
established shapes, wherein the shape of regions of a set include an identified
shape of an inlier or outlier region within an array feature;
(c)   processing each region of each set according to a region processing routine;
and
(d)   saving the displayed shapes in a first file and the processed results in a
second file.

44.   (New) The method according to claim 43 wherein the biopolymers are
polynucleotides.

45.   (New) The method according to claim 44 wherein the biopolymers are DNA.

46.   (New) The method according to claim 43 wherein the first file is smaller than
the second file.

47.   (New) The method according to claim 43 additionally comprising, subsequent
to processing of each region, retrieving the saved shapes of the established regions
and displaying images of them.

48.   (New) The method according to claim 43 additionally comprising, saving the
array signal image, and subsequent to processing each region, retrieving the array
signal image and saved shapes of the established regions and displaying overlaid
images of them.

49.   (New) The method according to claim 48 wherein each displayed region is

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linked to processed results for that region.

50.   (New) The method according to claim 49 additionally comprising evaluating the results from the processing based on the displayed retrieved shapes.

51.   (New) The method according to claim 49 additionally comprising, based on the displayed retrieved shapes, altering a parameter used in the processing and re-processing a region using the altered parameter.

52.   (New) The method according to claim 48 additionally comprising re-processing a region in response to an alteration of one of the shapes of a set using the altered shape.

53.   (New) An apparatus for reading an addressable array of biopolymers on a substrate which array has been exposed to a sample, comprising:
(a)   a detector to detect signals from the exposed array to obtain a signal image of the array;
(b)   a memory; and
(c)   a processor which:
establishes, based on the detected signals, a shape of each region in one or more sets of multiple regions on the array signal image, wherein the shape of regions of a set include an identified shape of an identified inlier or outlier region within an array feature;
saves a definition of the shapes of the established regions of each set in a memory;
processes each region of each set according to a region processing routine; and
saves the displayed shapes in a first file and the processed results in a second file.

54.   (New) The apparatus according to claim 52 wherein the biopolymers are polynucleotides.

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55.   (New) A computer program product, comprising: a computer readable storage medium having a computer program stored thereon for performing, when loaded into a computer, the steps of:

(a)   receiving signals from a biopolymer array which has been exposed to a sample, as a signal image of the array;

(b)   saving the array signal image in a memory;

(c)   establishing, based on the detected signals, a shape of each region in one or more sets of multiple regions on the array signal image, wherein the shape of regions of a set include an identified shape of an identified inlier or outlier region within an array feature;

(d)   saving a definition of the shapes of the established regions of each set in a memory; and

(e)   processing each region of each set according to a region processing routine.

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